



Look into my eyes

Mario Runco gets his intraocular pressure checked in one of several photographs taken during STS-44. More photos on Page 3.



Double decades

This is how five JSC employees looked 10 years ago when their carpool was only one decade old. Story on Page 4.

Space News Roundup

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Discovery to roll over next week

By James Hartsfield

With *Atlantis* home, *Discovery* will move on deck a week from today as it rolls to Kennedy Space Center's Vehicle Assembly Bldg. to be lifted vertical and attached to the STS-42 solid rockets and fuel tank.

Discovery, carrying the International Microgravity Laboratory-1, will spend five days in the VAB before moving to Launch Pad 39A on Dec. 18. This week, technicians closed out *Discovery*'s engine compartment, double-checked connections

between the orbiter and the IML-1 space-lab module, installed sleep stations in the crew cabin and finished tests of the orbital propulsion systems.



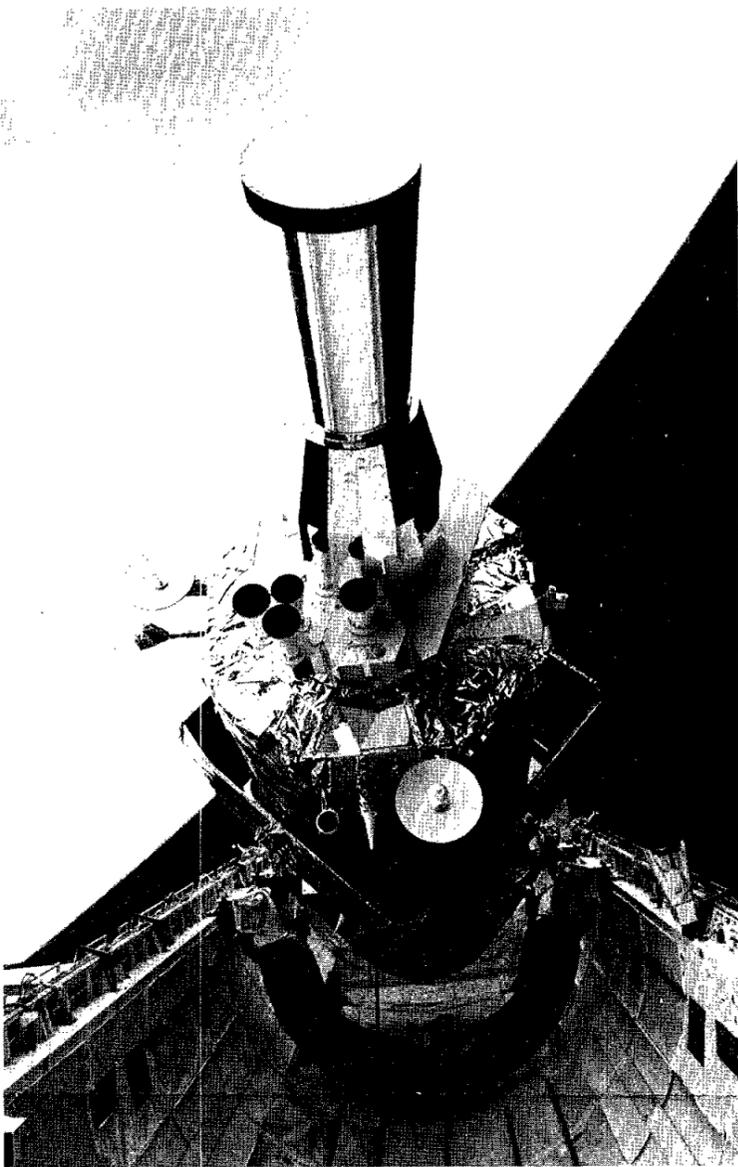
The STS-42 crew — Commander Ron Grabe, Pilot Steve Oswald, Mission Specialists Norm Thagard, Dave Hilmer and Bill Readdy, and Payload Specialists Roberta Bondar and Ulf Merbold — traveled to KSC to look over *Discovery*'s cargo bay before the doors were closed later this week. A 36-hour joint integrated simulation is planned next week to hone the skills of the crew and flight controllers.

Atlantis may be on the move Saturday morning as it begins a two-day ferry flight aboard the Shuttle Carrier Aircraft from Edwards Air Force Base, Calif., to KSC. *Atlantis* came through seven days in space on STS-44 with only 12 heat-protection tiles in need of repairs and few other problems showing up in a quick post-landing inspection.

The faulty inertial measurement unit that caused *Atlantis* to come home early from STS-44 will be removed and replaced once the spacecraft is back at KSC.

Elsewhere, *Endeavour*, in Bay 1 of KSC's processing hangar, continues through extensive preparations for its first flight next spring. This week, electrical connections in the spacecraft's three main engines were tested. In addition, testing was performed on the freon coolant loops, the environmental control system, the anti-skid brakes and the drinking water system.

A test firing of *Endeavour*'s main engines will precede its first flight and is now planned for March.



NASA Photo

Above: The Defense Support Program satellite is raised in *Atlantis*' payload bay prior to its deployment on Flight Day 1 of STS-44. Below: Mission Specialist Story Musgrave, who now holds the shuttle record for most hours flown, is greeted by his son, Lane, during welcome home ceremonies at Ellington Field.

JSC Photo by Jack Jacob



Atlantis crew makes most of shorter flight

By Kelly Humphries

Atlantis and its crew of six landed safely Sunday afternoon at Edwards Air Force Base, ending a successful mission three days early because of a navigational unit failure.

Ironically, the failure would not have been discovered until much later in the planned 10-day flight had the crew not done such a good job of conserving its resources. The failure of inertial measurement unit 2 was discovered after the crew was given the go-ahead to come out of a partial electrical powerdown, routinely used on long duration flights to conserve consumables.

The failure represented no immediate safety risk to the crew, but Flight Director Phil Engelauf and the Mission Management Team decided to bring *Atlantis* home early based on flight

rules designed to ensure at least two IMUs are working properly for reentry. Each shuttle has three redundant IMUs that provide information on speed and position that the general purpose computers use to operate the vehicle's control systems.

Atlantis touched down at 4:35 p.m. JSC time Sunday, rolling to a stop at 4:36 p.m. Mission duration was 6 days, 22 hours and 52 minutes.

Engelauf said the crew had already achieved the bulk of its objectives.

On Flight Day 1, the crew deployed the primary STS-44 payload, the 5,200-pound Defense Support Pro-

gram satellite called "Liberty" that will be used to detect missile launches, space launches and nuclear detonations. Department of Defense officials reported the satellite's inertial upper stage performed as expected in moving DSP to its final orbit.

Crew members also reported significant achievements in sighting military targets from orbit and in life sciences research.

Haziness in the Earth's atmosphere and cloudiness over targets hampered the military remote sensing experiments of M88-1 Military Man in Space and Terra Scout, but Mission Specialist Mario Runco and Payload Specialist Tom Hennen were able to spot large ships and airplanes from 195 miles in orbit.

"I believe astronauts can serve the military in space," Mission Specialist Mario Runco said during an in-flight news conference. "The observations I've made and we've made so far have been quite remarkable. They still have a long way to go, however, in terms of the equipment we use and what should be available on the shuttle or some future space platform."

"I think probably the biggest thing (having an observer in space) has added, from this vantage point, is color," Payload Specialist Tom Hennen said. "We just don't seem to get the total qualities with returned

Please see STS-44, Page 4



Crew calls flight 'magic'

Space flight is a "magic" experience, the crew of STS-44 told family, friends and co-workers when it arrived home Monday afternoon at Ellington Field.

Although disappointed that their flight had been cut short, crew members stressed the accomplishments of the mission and thanked their co-workers for preparing them so well.

JSC Deputy Director P.J. Weitz welcomed the crew, reminding them that although the mission was shortened the space shuttle has an impressive record with only two early returns in 100 million miles of travel.

Commander Fred Gregory agreed: "We were doing work on how the body changes in space. There's nothing written about that. We're

going to write that," he said. "That's why I love going to space — because we learn so much."

Weitz also congratulated Mission Specialist Story Musgrave for moving into lead as the shuttle astronaut with most time in space — 596 hours. Pilot Tom Henricks, reminding everyone that the crew called its commander "Dad," praised the two veterans of the mission.

"Now that Story's got more hours in the shuttle than anybody else, that must make you the granddad, Story. Dad and Granddad took us four kids on one heck of an adventure and like any great experience it ended too soon," Henricks said.

Mission Specialist Jim Voss
Please see CREW, Page 4

'When we get details right, big things will follow'

[Editor's note: NASA Administrator Richard H. Truly wrote the following discussion of Total Quality Management for all NASA centers.]

By Richard H. Truly

All of us on the NASA team take justifiable pride in our problem solving abilities. The term "tiger team" was invented at NASA and we have perfected our approach as we have solved problems over the year. But, our history has been that something has had to be demonstrably broken before we formed a team to fix it.

Our continuous improvement efforts are intended to be the next progressive step after tiger teams. We know how to fix problems; now let's use those same skills, techniques and teamwork to do a better job of preventing problems in the first place.

Our tiger teams are great firefighters. Many of our leaders occupy their current positions because, when finding a point out of control, they've been good at finding the special cause and removing that cause to put the process back to where it was in the first place.

Suppose we devoted the same

time, level of talent and staff to process improvement teams as the effort we devote to attacking known problems? I don't know what the answer is, but I do know the people of NASA and my bet is that we'd see a lot of improvement. That's what I mean when I say continuous improvement is the next advancement of a skill we already know and practice. All we need is the will to put time and effort into improving things that aren't broken yet.

In the survey done by the Cumberland Group prior to the Headquarters leadership retreat last summer, many of you

identified firefighting skills as one of NASA's strengths. but, you also said that we were not good at delegating decision-making. That's a generalization that doesn't give us much guidance for improvement. The continuous improvement process is a way to get at the problem in a very specific way. As we form teams to look at how we carry out our current administrative and technical processes, one of the things each team should do is identify current decision, approval and signature points in that process. This gives us a chance to look at each of those points and ask

whether any value is being added by that step and whether the decision or approval is being made at the lowest level.

One caution. Many of our administrative processes have become so cumbersome that you could be tempted to call them broken. Be careful that you don't confuse a process improvement team whose goal is to make things better with a tiger team whose goal is to put a process back to where it was in the first place!

Things that are broken identify
Please see TRULY, Page 4

JSC

Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Gift Store from 10 a.m.-2 p.m. weekdays.

General Cinema (valid for one year): \$4.

AMC Theater (valid until May 1992): \$3.75.

Loews Theater (valid for one year): \$4.

Astroworld Holiday in the Park (Nov. 29, 30, Dec. 1, 6-8, 13-23, 26-31): \$5.50.

Dickens on the Strand (Dec. 7-8, Galveston): adult, \$4; child (6-12) or senior citizens, \$2.

Children's Christmas Party (10 a.m. Dec. 14, Gilruth, includes refreshments, picture with Santa and entertainment): adult, \$1; child, \$4.

Nutcracker (8 p.m. Dec. 13, 1 and 8 p.m. Dec. 14, 2 p.m. Dec. 15, University of Houston-Clear Lake Bayou Theater): \$10, limit four per employee.

Entertainment '92 (coupon book): \$26 for FBA members' first book; \$27 for all others.

JSC

Gilruth Center News

Sign up policy — All classes and athletic activities are first come, first served. Sign up in person at the Gilruth Center and show a badge or EAA membership card. Classes tend to fill up four weeks in advance. For more information, call x30304.

Defensive driving — Course is offered from 8 a.m.-5 p.m. Jan. 11 or Feb. 8. Cost is \$19.

Aerobic dance — High/low-impact classes meet from 5:15-6:15 p.m. Tuesdays and Thursdays. Cost is \$32.

Exercise — Low-impact class meets from 5:15-6:15 p.m. Mondays and Wednesdays. Cost is \$24.

Weight safety — Required course for employees wishing to use the Gilruth weight room. The next class will be from 8-9:30 p.m. Dec. 11. Cost is \$5; preregistration required.

Winter basketball — Sign-ups for the Winter Basketball Leagues will be Dec. 11-12. Monday, Tuesday and Thursday Men's C league will sign up at 7 a.m. Dec. 11. Men's A and B league will sign up at 7 a.m. Dec. 12.

Fitness program — Health Related Fitness Program includes medical examination screening, 12-week individually prescribed education program. Call Larry Wier, x30301.

JSC

Swap Shop

Swap shop ads are accepted from current and retired NASA civil service employees and on-site contractor employees. Each ad must be submitted on a separate full-sized, revised JSC Form 1452. Deadline is 5 p.m. every Friday, two weeks before the desired date of publication. Ads may be run only once. Send ads to Roundup Swap Shop, Code AP3, or deliver them to the deposit box outside Rm. 147 in Bldg. 2. No phone or fax ads accepted.

Property

Sale/Trade: 1 acre lot w/skiing, sell or trade for travel trlr. 488-7090.

Sale: Egret Bay condo, 2-2, covered parking, all appli, waterfront, FPL, blinds, fan, patio, storage, pools, boat ramp, \$39.5K. 333-9281 or 481-3637.

Rent: Stella Link/610 Loop area, 3-1, LR, DR, den, eat-in kitchen, hardwood floors, garage, fenced yard, in-unit occupancy, ref, 700/mo. Bell, 723-7312 or 774-4122.

Sale: Santa Fe, 2.5 acres, well, septic, fenced w/trees, \$21.9K or owner finance w/20 percent down. 534-2231.

Sale: Medical Ctr condo, 2-1-1, W/D, FPL, refrig, microwave, sec sys, poolside, \$314.18/mo. Debra, x30915.

Rent: Middlebrook, 4-2-2, \$775/mo. 283-4806 or 486-5380.

Lease: Webster/Ellington condo, 2-1, \$475/mo. Dave, x38156 or Herb, x38161.

Rent: Tranquility Lake condo, 1 BR, W/D, FPL, sec gate, \$410/mo. Bill, x31167 or 333-9042.

Lease: El Lago condo, 1-1, FPL, W/D, refrig, new paint/carpet, \$400/mo. Tom, 335-1514.

Sale/Lease: Seabrook, 3-2-2A, 474-7234.

Sale: Baybrook condo, lg 1 BR, cedar FPL, new carpet/vinyl/verticals, wallpaper/paint, all appli, fans, sec sys, assume loan, \$33.5K. 892-4920 or 280-8196.

Lease: Meadowbend, 3-2-2, FPL, fenced yard, miniblinds, fans, community pool/tennis, no pets, avail Jan 15, 1992, \$750/mo. Jim, x35852 or 474-7747.

Rent: Stateline, NV, Ski Heavenly Valley condo, avail 2/24/92 to 3/2/92, \$395. Tom, x38298 or 488-4089.

Rent: Heritage Park, 3-2-2, cul-de-sac, FPL, new carpet/paint, fenced yard, Geno, 280-1505 or 992-2156.

Lease: Pipers Meadow, 3-2-2, high ceilings, FPL, split BR, accept 4/mo lease or longer, pets ok, \$775/mo plus dep. 486-5527.

Lease: Meadowgreen, 4-2-5-2, lg living area, DR, breakfast area, inside utility, pool, \$1250/mo plus dep, avail Jan 1992, 488-4608.

Rent: Lake Travis cabin, private boat dock, C/AH, fully equipped, accom 8, wkly/dly, \$325/\$80, 474-4922.

Lease: Webster/Ellington condo, 2-1, \$475/mo. Eric, x38420 or Dave, x38156.

Sale: Brookforest, 4-2-5, lg backyard, pool, spa, gameroom, approx 3400/sq ft, \$154,500, 486-6133.

Rent: Ski area house, Taos, NM, near town, mountain view, sleeps 4, wkly rentals, 532-2082.

Sale: Seabrook bayfront lot, 75' x 250', \$110K. 282-3097 or 471-2859.

Lease: Tranquility Lake condo, 1 BR, W/D, FPL, patio, covered parking, 333-4917.

Cars & Trucks

'90 Dodge Dakota convertible, loaded, ex cond, low mi, \$15K. 333-9742.

'77 Mercedes 300D, auto, P/W, P/L, elec sunroof, ex cond, \$3650. 333-7180 or 333-9581.

'87 Porsche 928 S4, silver, leather int, sunroof, alarm, ex cond, \$26.2K. Mike, 960-8988.

'87 Toyota PU, AM/FM, A/C, red, ex cond, \$3.9K. John, 554-9205 or (409) 766-5994.

'84 Volvo GL Turbo, new JVC stereo cass, leather int, sunroof, auto, ex cond, \$5.8K. Cyndi, 333-7761 or 482-8224.

'83 Chev Camaro Z28, 305, V8, 73K mi, new tires, T-top, ex cond, \$3995 OBO. Tim, x31838 or 480-4226.

'82 Corvette, collector's edition, extras, \$11K. 482-8958.

'89 Cutlass Sierra, 4 dr, 6 cyl, pwr access, cass, blk w/gray int, ex cond, \$7.6K. 497-6401.

'78 Mercury Grand Marquis sedan, seats 6 or 7, ex eng, rust on hood, \$1K. Campbell, 333-6107 or 488-6494.

'67 IH Scout 800, 2 wheel dr, good cond, 4 cyl, 3 spd, removable top/drs, \$800. Sal, x31797 or 438-2740.

'79 Jeep CJ7 blk hardtop, blue/gray drs, BO. Rich, x34818 or 480-9335.

'87 Honda Accord LX, loaded, 5 spd, sunroof, charcoal gray, ex cond, \$8.1K. 532-1673.

'89 Subaru XT-6, auto, A/C, loaded, 14K miles, 5 yr/80K mi factory warr, \$8.5K, take boat or older car as

part trade. 332-3775.

'89 Ford F-150, Lariat XT, supercab, captain seats, ex cond, 58K mi, \$9150 OBO. 333-7668 or 488-0345.

'74 Chevy PU, 80K mi, many new parts, \$2.4K OBO. Brett, x34465 or 480-0237.

'78 Pontiac Grand LeMans, 98.5K mi, 4 dr, A/C, Sharp AM/FM/cass stereo, new tires/battery/inspection, good cond, \$900 OBO. Rich, x38519 or 996-7630.

'72 Buick Skylark, 4 dr, 350, V8, 91K mi, A/C, \$1.1K. x38669.

'85 Ford Bronco II, Eddie Bauer ed, A/C, P/S, P/B, auto, 4 wheel dr, blue/beige, \$5.4K. Jon, x32896 or 538-1443.

'85 Volvo 740 GLE, blue, loaded, ex cond, incl cellular telephone, \$5.6K. Nancy, 338-1489.

'77 Chevy Malibu, 305, V8, P/S, P/B, 4 dr, A/C needs work, 90K mi. Cliff, x39529 or 534-2462.

'78 Porsche 928, auto, brown w/leather int, ex cond, \$8.9K. Bill, x39980.

'78 Chevy Monte Carlo, black/black, V8 rebuilt, auto, loaded, \$1.2K. Glenn, 479-1339.

'83 Volvo sedan, std trans, blue, good cond, \$3850. Marilyn, x32116 or 480-1934.

'88 Suzuki Samurai, A/C, AM/FM/cass, 46K mi, ex cond, \$4.8 OBO. Monte, 280-2532.

'85 Nissan 300ZX, AM/FM/cass, T-top, 5 spd, cruise, new tint/pinstripes, 87K mi, \$6K. 280-0410.

'80 Toyota Corolla SR-5, AM/FM, A/C, good cond, \$1350 OBO. x30354 or 480-4160.

'89 Plymouth Acclaim, 4 dr, good cond, 57K mi, \$6.2. 922-5935.

'91 Geo Storm wagon, 5 spd, A/C, AM/FM/tape, take over payments plus, \$34-1303.

'88 Toyota Corolla, 4 dr, 5 spd, cruise, A/C, AM/FM/cass, P/S, child locks, rear defogger, \$5750. Debbie, 333-7883 or 488-7267.

'81 Toyota Celica GT5, white w/blue int, 5 spd, A/C, tinted, AM/FM/cass, 105K mi, good cond, \$2K. 333-4504.

'85 Chevy Cavalier, 4 dr, 4 cyl, 2.0L, auto, 74K mi, new tires/brakes, ex cond, \$2.4K. 488-5522.

'72 Datsun 240Z, new clutch, ex drive train, \$2K OBO. 333-2786.

'77 Cadillac Sedan DeVille, 4 dr, loaded, 200 W/stereo/cass, good cond, \$990. 286-3320.

'91 Ford Explorer, loaded, 11K mi, \$19.5. 663-7499.

'78 Toyota Corolla, auto, A/C, AM/FM, good cond, x37990 or 996-1046.

Cycles

Boys 14" Schwinn Aerostar bicycle, ex cond, \$70. 996-9157.

'84 Honda Sabre VF700S, ex cond, 27K mi, sport fairing, backrest, \$1400. 283-1275.

Mens Schwinn 10 spd racer, silver, good cond. 538-1849.

Girls 20" Huffly bicycle, pink/purple, \$25. x31836 or 334-3995.

Boats & Planes

17' Glastron ski boat w/85 hp Mercury O/B, walk-thru windshield, seats 8, stereo, bimini top, cover, \$3.2K. 333-7180 or 333-9581.

25' Cal, new custom paint and bottom job, sleeps 67, galley, head, all instruments, 8hp O/B, 4 sails, 554-4961.

'91 Lowe, Big John alum boat, 25hp elec start, 2-6 gal fuel tank, small wheel trlr, used fresh water only, \$3K. 474-4289.

16' Prindle Catamaran w/trlr, exc sails, \$1.5K OBO. David, x35464.

Audiovisual & Computers

Mac 8.24 display card, new, \$399; Little Morse ADB, new, \$55; MacPrint, new \$50; Mark Williams C for Atari 1040 st, all manuals, orig disks, \$50. Brian, 333-7695 or 480-1844.

Laser 128EX complete Apple II/e compat sys, keyboard/CPU, RGB mon, 2nd disk dr, NLQ printer, joystick, SW, \$600 OBO. Bill, x39020 or 991-0361.

Atari Computer 800 w/11 games, basic, joystick, ex cond, \$50. 486-8266.

Casio business organizer scheduling sys, SF-8000 w/64K RAM, \$100. Vince, x33105.

Commodore 64, 1541 drive, Gemini IOX printer, power strip, joysticks, \$200. 482-2138.

JVC KD-95 stereo cass deck, \$75; lamp, \$25; Technics compact disc player, SL-P1, \$20 OBO. 482-2138.

Amiga 500, 1 MG, 2DD, stereo speakers, video adapter, mouse master plus mouse, SW, \$500 OBO. x38682 or 332-7205.

IBM PC/XT, SW, \$400 OBO; Mac MIDI sequencer SW, \$200 OBO; Mac Deluxe music construction set, inc

JSC

Dates & Data

Today

Cafeteria menu — Special: tuna and noodle casserole. Entrees: broiled codfish, fried shrimp, baked ham. Soup: seafood gumbo. Vegetables: corn, turnip greens, stewed tomatoes.

Monday

Cafeteria menu — Special: meatballs and spaghetti. Entrees: wieners and beans, round steak with hash browns. Soup: chicken noodle. Vegetables: okra and tomatoes, carrots, whipped potatoes.

Tuesday

AIAA lunch and learn — The American Institute of Aeronautics and Astronautics's Life Sciences and Space Processing Technical Committee will host a lunch and learn session on "Decompression On Orbit" at 11:30 a.m. Dec. 10 in the Bldg. 3 cafeteria. Michael Powell of JSC's Life Sciences Division will speak. For more information, call Bill Agosto, 486-9343.

Women's holiday party — A JSC women's holiday party will be held Dec. 10 in the Gilruth Center ballroom. A cash bar will open at 4:30 p.m. with an hors d'oeuvre buffet at 5:30 p.m. The program will begin at 6:30 p.m. For additional information contact Donna Coennen x33081.

Cafeteria menu — Special: fried chicken. Entrees: beef stew, shrimp creole, sweet and sour pork chop with fried rice. Soup: beef and barley. Vegetables: stewed tomatoes, mixed vegetables, broccoli.

Wednesday

IEEE videoconference — The Galveston Bay section of the Institute of Electrical and Electronics Engineers will host a videoconference on "Optical Digital Computing" at 11 a.m. Dec. 11 at the Gilruth Center. A special introductory tutorial will precede the conference at 9:30 a.m. For more information, call Francoise Stephan, 268-3216, or Andy Lindberg, x31474.

Astronomy seminar — The JSC Astronomy Seminar will meet at noon Dec. 11 in Bldg. 31, Rm. 129. Dr. Reginald Dufour of Rice University will present "A Grand Tour of Galactic Hall Regions." For more information, call Al Jackson, 333-7679.

Cafeteria menu — Special: Swiss steak. Entrees: fried perch, New England dinner. Soup: seafood gumbo. Vegetables: Italian green beans, cabbage, carrots.

Thursday

AIAA reception — The Houston section of the American Institute of Aeronautics and Astronautics will host its annual JSC director's reception at 5 p.m. Dec. 12 at the Gilruth Center. JSC Director Aaron Cohen will discuss "JSC in the '90s." Cost is \$4 for members, \$5 for non-members or \$3 for students and young members. Reservations are due by noon Dec. 9. For more information, call 333-6064, 283-4214, 283-6000 or 282-3160.

Computer simulation meeting — Frank Hughes, who has worked in JSC's simulation and training areas for

25 years, will speak on "Coordination of International Training Simulations" at a Society for Simulation meeting of the Bay Area/Houston chapter from 11:45 a.m.-12:45 p.m. Dec. 12 in the PIC Room on the first floor of Lockheed Plaza 3, 1150 Gemini Ave. For more information, call Wade Webster, 282-6589, or Robin Kirkham, 333-7345.

Cafeteria menu — Special: stuffed bell pepper. Entrees: turkey and dressing, enchiladas with chili, wieners and baked beans. Soup: cream of chicken. Vegetables: zucchini squash, English peas, rice.

Dec. 13

Cafeteria menu — Special: Salisbury steak. Entrees: baked scrod, broiled chicken with peach half. Soup: seafood gumbo. Vegetables: cauliflower au gratin, mixed vegetables, buttered cabbage, whipped potatoes.

Dec. 15

Lunar enterprise — The first Lunar Enterprise Conference featuring American, Russian and Japanese experts, will be held Dec. 15-16 at the Hilton Hotel, San Francisco International Airport. Registration is \$295. Call (408)996-9210 for more information.

Dec. 17

Christmas concert — The Lockheed Music Makers Choir will present its annual Christmas concert at 11:30 a.m. Dec. 17 in Teague Auditorium. NASA employees, contractors and the public are invited. For more information, call Ray Suffron, x31773.

manuals, \$100 OBO. 333-7668 or 488-0345.

New Amiga 500, 1 MG memory expansion plus clock, \$50. David, 282-5338.

386SX 16 computer w/CD ROM, Magnavox, new, 16 MHz, 40 Mg HD, 1 Mg RAM, 1.44 Mg 3.5" floppy, VGA card/mon, incl Groliers Encyclopedia, MS-DOS, Lotus 1-2-3, \$2.9K. Rick, 996-8961.

Ham radio equip, TI 994/A computer sys, SW man, stereo components. 943-3685.

Nintendo, ex cond, inc power pad/games, \$75. Rob, x38245.

Nintendo entertainment sys, games, NES Four Score, Light Zapper Gun, Tom, x31791 or 474-9384.

VCR, \$100; stereo, \$250, CD player, \$75, CD's, Rap/Soul, \$5/ea or 2 for \$8. Tim, x32464 or 481-3970.

IBM PS/2, used approx 10 hrs, ex cond, Segavision video game, \$75. x38516 or 482-8820.

RCA 23" inch color tv console, \$100 OBO. x30467 or 532-1994.

Nintendo action set, incl base, 4 controllers, Interface, Zapper Gun, Super Mario 3, Offroad, Top Gun, \$75. 481-6942.

IBM compatible 386-33, new 120 Mg HDD 5.25, 3.5 HD floppies, 1024 VGA moni/graphics card, 1meg RAM 120 Mg tape backup, \$2.1K. x30355 or 338-2705.

Nintendo game set w/NES joystick, 20 games, complete set of Nintendo Power magazines w/strategy guides, cost \$1K, sell all or part. Frank, x39924 or 992-3515.

Musical Instruments

'86 Ovation collectors series, \$550; '85 Ibanez elec, \$250; '85 Fender amp, \$200. Clayton, 486-7111.

Armstrong flute, \$250; Selmer alto saxophone, \$400; Selmer S-80 Paris alto saxophone, \$1.8K. Karl, 944-8717.

Armstrong flute, ex cond, was \$500, now \$350; Thomasville nightstand, good cond, \$50. 283-8213 or 486-9537.

Jackson bass guitar, custom paint, neck thru body, active elec, \$450; 1x15 tuned port bass cabinet, new JBL speaker, \$200. 334-1303.

New Buffet Crammon Ell B-flat clarinet, used 3 months, \$450. 333-2830.

Full sz Gulbransen elec organ, 25 key foot pedals, 2 keyboards, all sounds/rhythms, \$750 OBO. 333-7136 or 337-4166.

Gordon Laughhead upright piano, \$150. 944-8312.

Photographic

Mamiya 645 body, prism finder, 80mm/150mm lenses, power grip, 120/220 film inserts, alum custom case, polarizer, 2 LMC-HAZE filters, lens hood, Ken adapter, all ex cond, \$1K OBO. 282-3822 or 991-0372.

Nikon lenses, 135 mm, F2.5 portrait/telephone, 50-300mm, F4.5 worlds largest zoom lens. Joe, 333-7357 or 944-6513.

Vivitar 3 mm flash, ex cond, \$15; 2x converter for Pentax-type lens, \$15. Steve 333-7819 or 474-5226.

Auto camera, 35-7 mm zoom, w/new battery, Fuji DL-400, \$70. Robert, x35258 or 482-0374.

Pets & Livestock

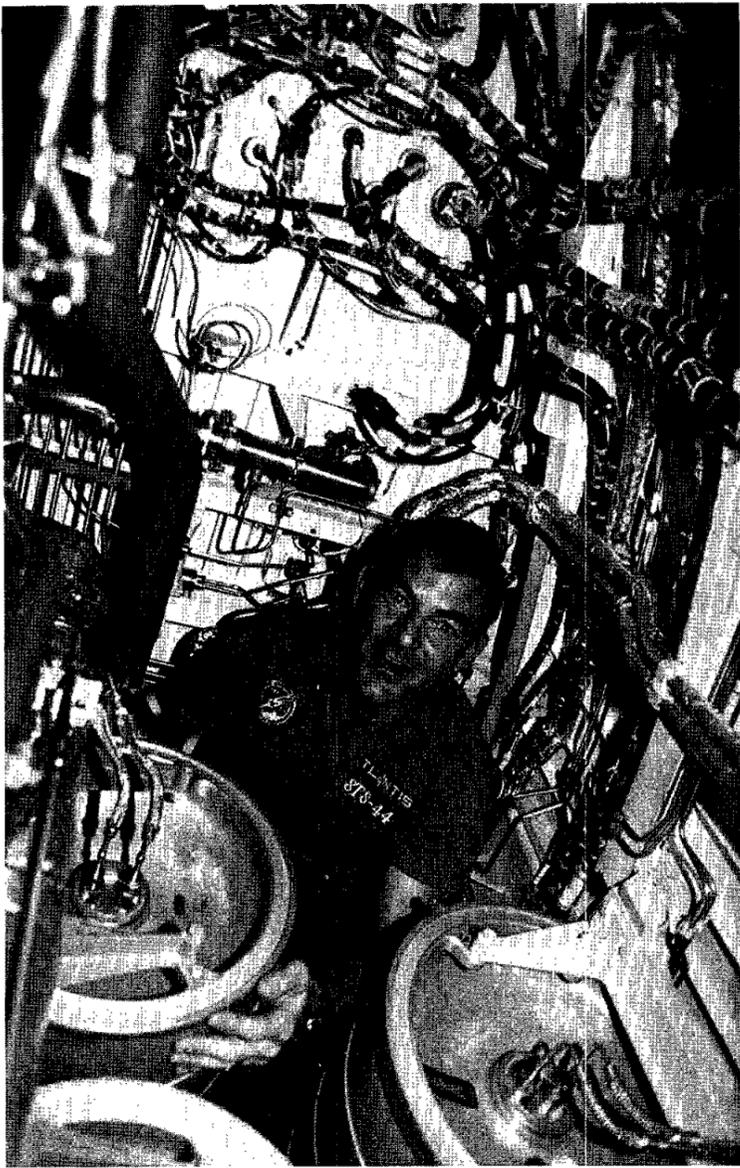
8 mo male yellow lab, \$75, portable kennel also avail. Michele, 482-9576.

Keeshond puppies, \$200, wolf gray. Chris or Julie, 474-3152.

AKC Siberian husky puppies, blk, wht, tan markings, \$150. 992-3124.

AKC miniature Schnauzer puppies, 3 male, 3 female, ready Dec 20th, \$250. Darilyn, x38279 or 482-9231.

Free, black puppy, mixed breed. David, 282-3972 or 488-4207.



What's In a Name?

STS-44 crew displays high spirits as it completes challenging mission

A healthy sense of humor was one of the things that characterized the STS-44 crew on its recent mission to expand the boundaries of orbital remote sensing techniques and space physiology.

Among the bits of humor that graced *Atlantis'* decks were the nicknames given to most of the crew members.

Clockwise from top left:

1) Mission Specialist Jim Voss earns his nickname of "Bilge Man" trouble-shooting humidity separator leakage on the lower deck of *Atlantis*. Voss is surrounded by several water tanks and a maze of shuttle wiring and plumbing. This is the first photo released of a crewman in this area of a shuttle.

2) Payload Specialist Tom Hennen shows how he got his nickname of "Trash Man" in an unofficial crew portrait taken on *Atlantis'* middeck. Hennen is holding components of a trash compactor used to save space on the long-duration flight. Surrounding Hennen,

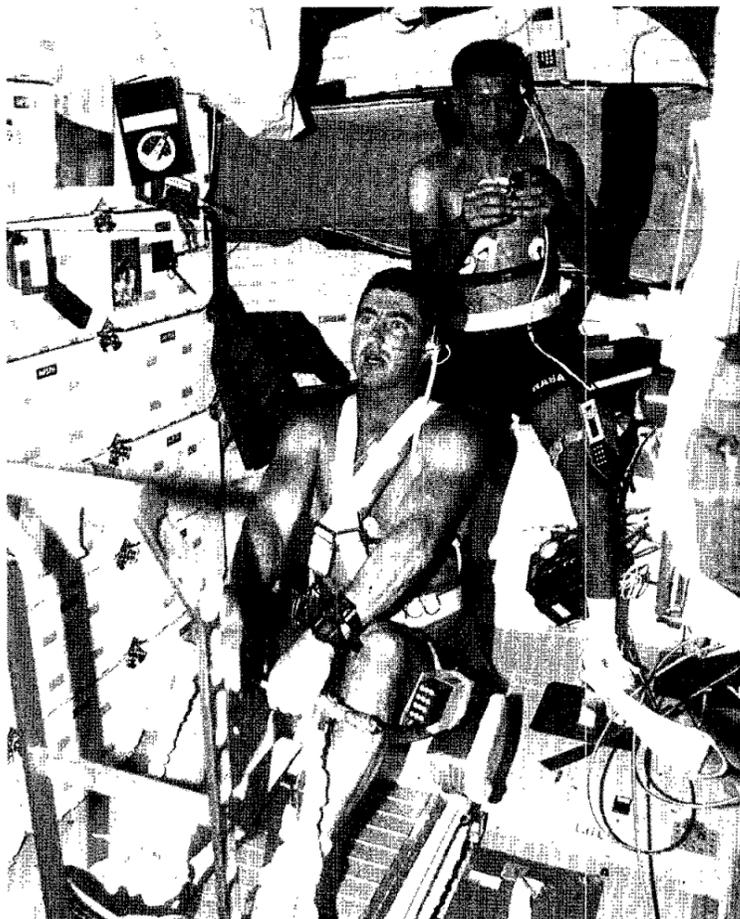
clockwise from bottom left, are Commander Fred "Dad" Gregory, Mission Specialists Mario Runco and Story Musgrave, Pilot Tom Henricks, and Mission Specialist Jim Voss.

3) Runco, sometimes referred to as "Spock" because of his affinity for Star Trek, floats in the absence of gravity on *Atlantis'* middeck.

4) Musgrave, known as "Dr. Story" or "Dr. Cryo," observes the Earth below through the hatch window on the shuttle middeck.

5) Henricks, his face obscured by the experiment apparatus, participates in the Visual Function Test.

6) Henricks, left, rows on the modified treadmill device used for biomedical tests and exercise during the eight-day flight. Earlier in the mission the device malfunctioned in the conventional run-in-place mode. Runco, with sensors on his torso, prepares for a test either on the treadmill or in the Lower Body Negative Pressure device.



SLIDE ATTACH

Billica hangs STS-44 plaque

Roger Billica, chief of Space and Life Sciences' Medical Operations Branch, earned the right to hang the STS-44 plaque Monday in the Mission Control Center.

Billica represented the flight surgeon console position and its supporting medical staff.

"I chose these folks because they have been working very hard at defining potential in-flight procedures and protocols to be used as countermeasures associated with readapting to the one-gravity environment," said Lead Flight Director Milt Heflin. "The use of these protocols should enhance our ability to continue to return safely after longer flights."

Heflin commended the group for the professional and precise manner in which the Lower Body Negative Pressure operations and other medical experiments were conducted.

"The fact that the flight crew was very cooperative with and embraced the medical experiments says a lot about the staff behind the scenes that made it happen," Heflin added.

Arbuthnot accepts Headquarters post

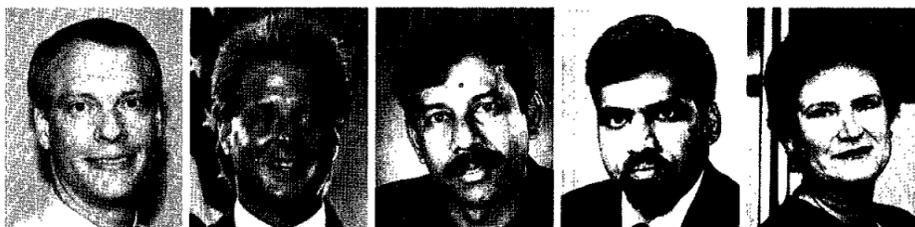
Richard E. Arbuthnot has left JSC's Human Resources Office to become executive assistant to Associate Administrator for Human Resources Sam Armstrong at NASA Headquarters.

A group leader in the Human Resources Management Branch, Arbuthnot had recently returned from a year's assignment as NASA Liaison to Sen. Robert Byrd, D-W.Va., in Washington, D.C.

Arbuthnot, who joined JSC in 1985 as a personnel management specialist, also had been special assistant for external affairs in the JSC Comptroller's Office.

Visiting scientist earns coveted Indian award

Prof. Sankar K. Pal, a National Research Council visiting scientist working on the application of fuzzy logic to space autonomous research problems at JSC, has earned one of



Billica

Arbuthnot

Pal

Lulla

Ernull

the most coveted awards for scientists in India.

Pal will receive the 1990 Shanti Swarup Bhatnagar award in engineering sciences for his contributions to a balanced mixture of theory, algorithms and applications using an classical and modern concepts in the field of pattern recognition.

Pal is a professor at the Indian Statistical Institute, Calcutta, India.

Lulla distinguished alumnus

Dr. Kamlesh Lulla of JSC's Flight Science Support Office recently received Indiana State University's 1991 Distinguished Alumni Award.

Lulla was recognized for "notable achievement reflecting honor and distinction" on his alma mater. Lulla is an Earth/remote

sensing scientist supporting STS-42 as the lead mission scientist for Earth observations.

Ernull top secretary

Judy P. Ernull, secretary to the director of Procurement, recently received the Marilyn J. Bocking Award for Secretarial Excellence.

Ernull, who has been in her current post for 18 months, is in charge of managing the administrative duties of the director's office, providing guidance to secretaries in five divisions and coordinating calendars and correspondence for the director.

She was complimented for ability to work with important company officials, establishing excellent rapport with the division and branch supervisors and their secretaries and with dedication to her job.

People

NCMA begins scholarship competition

The Space City Houston chapter of the National Contract Management Association is beginning its annual scholarship competition for students who are pursuing careers in contract management.

The deadline for applications is Jan. 15, 1992.

Scholarships for the spring 1992 semester will provide full- or part-time graduate or undergraduate students with 100 percent reimbursement for tuition and books.

Applicants must desire a career in contract management; have completed at least 27 college hours with at least a 2.0 grade point average; be enrolled in good academic standing for the spring semester; be majoring in business or a related field; live or work in the Houston area and complete an initial scholarship application. Part-time students must register for at least six hours.

Winners will automatically become eligible for full tuition and books scholarships for future years.

For applications, write Robbie Wilson, Johnson Engineering, Suite 201, 1290 Hercules Dr., Houston, 77058.

Correction

A photograph caption on Page 4 of the Nov. 22 Space News Roundup incorrectly identified the group meeting in the photo. The group was the 1992 Black History Committee, chaired by Mark Falls of Engineering's Propulsion and Power Division.

Crew welcomed

(Continued from Page 1) thanked those who helped train the crew and make the mission possible.

"We had a wonderful time and we did some good work," Voss said. "Thanks to everybody who helped us to get there."

Musgrave voiced disappointment that the mission was cut short.

"Personally, for all of us, it was an incredible disappointment," he said. "We gave it our best shot. We put an awful lot into those medical experiments. But that's the way it is and I'm sure we'll get to do it another day."

Mission Specialist Mario Runco said the mission was innovative.

"We're on a new frontier, doing the research we did to extend the life of the shuttle on orbit and extend man's stay in space, but also from the military perspective. I think we broke new ground."

Tom Hennen, the payload specialist, said his first and probably only flight was a complete success.

"I'd like to thank NASA for recognizing the validity of the payload specialist program and their insight in coming up with a plan that allows a payload specialist to integrate successfully as a functional crew member and not as excess baggage."



Carpooling is a way of life for these five JSC workers, who have been shuttling back and forth to work together for 20 years. From left are Mel Kapell, Steve Jacobs, Bob Patterson, Bob Cohen and Al Feiveson.

Driving for double decades

JSC commuters have carpoled distance to Moon

By Kelly Humphries

If there isn't a category for "World's Longest Running Carpool" in the Guinness Book of World Records, there should be.

At least, that's what Steve Jacobs of JSC's Structures and Mechanics Division says. He and four co-workers have just passed the 20-year mile marker on their carpool from southwest Houston to JSC.

They plan to make their claim official in the near future by submitting their feat to the Guinness Book for consideration.

"At 35 miles one way, for 250 days a year, for 20 years, we reckon we have accumulated about 350,000 miles, more than a trip to the Moon," Jacobs said.

The carpool began in November 1971 as Jacobs and his four traveling companions — Bob Cohen, now of the Space Station Projects Office, Bob Patterson of the Life Sciences Project Division, Mel Kapell of the Tracking and Communications Division, and Al Feiveson of the Systems Engineering Division — discovered each other through Roundup Swap Shop ads and word of mouth.

"That's when Al Feiveson bought his car that he is still driving," Jacobs said.

The carpoolers pick each other up at 7:15 and 7:25 a.m. every working day at two different points in Southwest Houston and make the 32.5-mile drive. Each person has a set day of driving. They arrive at JSC just after 8 a.m. They even have a reserved space near Bldg. 1.

"We get along well because we don't talk much," Jacobs said. "We don't really socialize much outside. But we're still buddies through it all."

The main reason for the car pool is convenience, he said. They couldn't face making a 75-mile round trip alone every day.

"Our philosophy," Feiveson said in a 1980 Roundup interview, "is that we can take advantage of all that Houston has to offer, but still work at JSC. If we lived in the NASA area and went into town even twice a week, we'd do more driving than we do now."

Kapell said in 1980 that the passengers often read or sleep. The group agreed that Cohen is the champion sleeper, known to be completely out within 6.2 seconds of entering the car.

STS-44 mission returns early

(Continued from Page 1)

from space film base or electro-optical or digital products."

Mission Specialist Story Musgrave completed all four sequences of experiments planned for the bioreactor rotating wall vessel, and witnessed the expected hydrodynamics. The bioreactor was being tested for use in growing large masses of tissue cultures for medical research both in space and on Earth, but the test used plastic beads.

Commander Fred Gregory performed a minor orbital maneuver on Thanksgiving Day to increase the orbital distance between Atlantis and a spent Soviet Cosmos upper stage. Prior to the maneuver, Atlantis would have come within 3.6 nautical miles below the object, but the maneuver made the closest

pass only 32.7 miles.

The crew also was able to get a good view of the Soviet space station Mir as they passed within 21 nautical miles of each other over the South Atlantic Ocean. Cosmonaut Sergei Krikalev relayed a message to the crew via amateur radio:

"We were near KSC at your launch time. We listened to the countdown on amateur radio and then we saw the whole launch sequence. It was a wonderful sight. Send our congratulations for a successful start. We hope all goes well for you."

Leakage from humidity separator B required troubleshooting, and Mission Specialist Jim Voss earned the nickname "Bilge Man" when he squeezed between water tanks on the equipment deck below the middeck to check the leak.

Space News Roundup

The Roundup is an official publication of the National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, Texas, and is published every Friday by the Public Affairs Office for all space center employees.

Due to the Christmas holiday, the Roundup will not be published Dec. 27. The deadline for Dec. 20 Swap Shop ads will be 5 p.m. Wednesday, Dec. 11, and the deadline for Jan. 3 ads will be 5 p.m. Tuesday, Dec. 24. Items for the Jan. 3 Dates and Data calendar are due by 5 p.m. Friday, Dec. 20.

Editor Kelly Humphries
Associate Editors Pam Alloway
Kari Fluegel

Truly message

(Continued from Page 1)

themselves. Continuous improvement is harder because a conscious choice has to be made regarding what to work on. Processes to be improved need to be prioritized based on such factors as impact, scope, ability to change, and ownership so that resources are directed at those processes in which improvement can provide the greatest payoff for the organization.

The country expects and we expect of ourselves that we will be the inspiration and leader of the country for the accomplishment of great things. But, great things are an aggregate of many smaller things — the details. I'm calling on you to sweat the details. When we get the details right, the big things will follow.